

PATENT
Serial No. 10/561,469
Supplemental Amendment

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously presented) A support comprising essentially parallel first and second surfaces, wherein at least one area on said first surface comprises surface structures that form evanescent-fields on the first surface of the support for the detection of optically-active substances within the evanescent-fields formed on the first surface of the support, wherein the surface structures on said surface comprise inclined surfaces that are inclined with respect to a plane of the support by an angle within a range from 10° to 85°.
2. (Previously presented) The support according to claim 1, wherein the at least one area comprises at least 100 areas.

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3. (Previously presented) The support according to claim 1, wherein a region of said first surface, where optically-active substances are detected is covered by a top plate.

4. (Previously presented) Support according to claim 1, wherein the angle of the inclined surfaces is between 25° and 65°.

5. (Previously presented) The support according to claim 1, wherein the refractive index of material forming the support is between 1.4 and 1.8.

6. (Previously presented) The support according to claim 1, wherein the surface structures comprise a symmetrical pyramidal structure.

7. (Previously presented) The support according to claim 1, wherein at least one capture probe is attached to the surface of the inclined plane.

8. (Previously presented) The support according to claim 1, wherein the capture probe is selected from the group comprising antibodies,

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receptor proteins, enzymes, signaling proteins, peptides, polysaccharides, ssDNA, dsDNA and RNA and PNA.

9. (Previously presented) The support according to claim 1, wherein the support further comprises reagents and/or buffers.

10. (Previously presented) The support according to claim 1, wherein the support is an optical disc.

11. (Previously presented) The support according to claim 1, wherein the support comprises a portion of a kit, wherein the kit comprises at least one of reagents and buffers.

12. (Previously presented) A device for the detection of optically-active substances comprising:

a support having opposing first and second surfaces, wherein the first surface comprises inclined surface structures that form evanescent-fields on the first surface of the support by TIR (total internal reflection) of light;

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at least one light source disposed on a side of the support facing the second surface, to emit the light that is directed at the inclined surface structures on the first surface through the support; and

at least one detector configured to detect an optically-active substance within an evanescent-field formed by the inclined surface structures on the first surface of the support.

13. (Previously presented) The device according to claim 12, wherein the at least one detector is arranged on the same side of the support as the light source.

14. (Previously presented) The device according to claim 12, wherein the at least one light source generates essentially monochromatic light.

15. (Previously presented) The device according to claim 12, wherein the at least one light source comprises at least two light sources generating essentially monochromatic light of at least two different wavelengths.

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16. (Previously presented) The device according to claim 12, further comprising a filter arranged within a light path of the at least one light source.

17. (Previously presented) The device according to claim 12, further comprising an objective lens configured to focus the light emitted from the at least one light source on the support.

18. (Previously presented) The device according to claim 17, further comprising a mask placed in the light path between the light source and the support, which essentially blocks all light directed at the support with an angle that would not result in TIR.

19. (Previously presented) The device according to claim 12, wherein the first and second opposing surfaces of the support are essentially parallel and wherein the inclined surface structures are formed in at least one area on the first surface, and wherein the inclined surface structures are inclined with respect to a plane of the support by an angle in a range of 10° to 85°.

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20. (Previously presented) The device according to claim 19, wherein the support is an optical disc.

21. (Previously presented) The device according to claim 19, wherein optical parameters are selected such that a depth d of an evanescent-field, which is formed in a medium comprising the optically active substance applied to the support is between about 20 nm and 200 nm.

22. (Previously presented) A method, comprising acts of:

providing a support comprising essentially parallel first and second surfaces wherein at least one area on the first surface comprises surface structures that form evanescent fields on the first surface of the support, wherein the surface structures comprise inclined surfaces that are inclined with respect to a plane of the support by an angle from 10° to 85° ; and

detecting an optically-active substance within a medium disposed adjacent the first surface of the support using

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evanescent-fields generated by the surface structures on the first surface of the support.

23. (Previously presented) The method according to claim 22, wherein detecting the optically-active substance comprises at least one of detecting fluorescence, detecting optical scattering, and detecting reflectance modulation.

24. (Previously presented) The method according to claim 22, wherein the optically-active substance comprises at least one of a ligand labeled with a fluorescence label, a scattering label, and a reflectance modulator.

25. (Previously presented) The method according to claim 22, wherein the optically-active substance is contained in or derived from at least one of blood, urine, sperm, vaginal secretion, stool, sputum, tissue, single cells, lymph and contents of a gastrointestinal tract.

26. (Previously presented) The method according to claim 22,

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wherein detecting comprises an act of detecting binding or
unbinding of the optically-active substance to the first surface of
the support.